



EDMfluid 80-S

Synthetic dielectric fluid for die-sinking EDM superfinish

Description

The **EDMfluid 80-S** is a synthetic, low viscosity dielectric fluid with a short boiling range (only 6 °C) suitable for surface roughness requirements of below 0.8 µm.

The fluid is formulated with highly pure paraffin-based hydrocarbons, further purified by special processing to alter the hydrocarbons' molecular structure. This allows to eliminate almost completely the aromatic hydrocarbon content and to minimise the range between initial and final boiling points.

The **EDMfluid 80-S**, thanks to its formulation, can guarantee high stability values in the long run of its viscometric characteristics, a basic and necessary requirement to achieve homogenous and high quality surface finish.

Properties and advantages

Compared with traditional products for die-sinking EDM with similar viscosity values but with a longer distillation range, the **EDMfluid 80-S** provides the following advantages:

- stability of process performance even after very long use
- higher erosion performance, particularly during finishing
- exclusion of risks of triggering electric arcs due to the formation of lac deposits on the electrodes or to the unsuitable viscosity, which may aid both the generation of sockets on the electrode, if made of graphite, and a surface with local opaque spotting
- reduction of specific tool electrode wear and tear
- drastic reduction in evaporation (up to 40%) even during high amperage processing, when compared with traditional dielectrics of a matching viscosity and long distillation range. Such reduction is due to the extremely short distillation range (only 6 °C) of the **EDMfluid 80-S**
- viscosity values suitable to ensure even fluid circulation in the gap area, including during minimum gap processing. This facilitates flushing in the erosion area and aids the removal of swarfs
- excellent filtering capacity to ensure higher performance and longer filter separator life
- excellent refrigerating capacity due to **EDMfluid 80-S** low viscosity and high thermal conduction properties
- total transparency and colourlessness of fluid, which, when properly filtered, ensures an excellent and unchanging visibility of the processing area even after long machining times
- higher processing safety thanks to the higher flash point when compared to traditional fluids with matching viscosity, and to the very low tendency to evaporation
- Non-toxic due to the high refining and purification degree of the substances on which the **EDMfluid 80-S** is based. The fluid stands out for its high skin tolerance due to the negligible aromatic hydrocarbon content
- safe for metals and seals of machines
- higher stability and resistance to oxidation; this is due to the type of content and to the special additives, factors that contribute to ensure the even performance during long periods and to lengthen the economic life of the product in use
- total absence of smell in the working area.



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Applications

The **EDMfluid 80-S** is particularly suited for generation of highly finished shapes ($r_a \leq 0.8 \mu\text{m}$). The fluid is specifically recommended for:

- spectacle frames mould manufacturing;
- jewellery moulds manufacturing;
- hard metal die insert casts.

The **EDMfluid 80-S** is also suitable for use with the new microdrilling EDM technology, requiring high level dimensional accuracy and low surface roughness, generating holes between 0.8mm and 3 mm in diameter.

Specifications

The **EDMfluid 80-S** is suitable to the requirements of major die sinking EDM machine manufacturers, such as: AGIE, CDM, CHARMILLES, CORMAC, ELOTHERM, EROTECH, FANUC, INGERSOLL, Makino, MITSUBISHI, ONA, Sodick as well as those of major filter manufacturers.

Storage conditions and safety

In normal conditions of use, **EDMfluid 80-S** does not entail any specific risks. Although fume emission is very low, it is advisable to install an efficient fume aspiration and extraction system. Information regarding health and environmental safety is available on request.

It is advisable to store the product indoors. If outdoor storage cannot be avoided, keep the drums horizontal to avoid any infiltration of water, which is not compatible with the electromachining process, in that even minor quantities could affect the dielectric strength of the contaminated fluid.

In case of outdoor storage, ensure a constant temperature of $\geq -5 \text{ }^\circ\text{C}$

Typical characteristics

EDMfluid			95-S
Characteristics	Test method	Unit of measurement	Values
Appearance			Colourless liquid
Density at 15°C	ASTM D4052	kg/l	0.751
Kinematic viscosity 20°C	ASTM D 445	cSt	1.83
Flash Point (PM)	ASTM D93	°C	≥ 80
Pour point	ASTM D97	°C	-12
Initial distillation point	ASTM D86	°C	204
Final distillation point	ASTM D86	°C	210
Colour	ASTM D156		+30
Odour			Odourless
Aromatic hydrocarbon content	UV spectrum	%	<0.001
Neutralisation number	DIN 51558/1	mg KOH/gr.	0.01
Doctor test	DIN 51765		negative

The above data are typical production data and are not intended to represent a specification¹

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